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April 24, 2007

**VIA HAND DELIVERY**

The Honorable Charles Terreni  
Chief Clerk/Administrator  
**South Carolina Public Service Commission**  
101 Executive Center Drive (29210)  
Post Office Drawer 11649  
Columbia, South Carolina 29211

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RE: Petition of the Office of Regulatory Staff to Establish Dockets to Consider Implementing the Requirements of Section 1251 (Net Metering) of the Energy Policy Act of 2005  
Docket No. 2005-385-E

Dear Mr. Terreni:

Enclosed for filing on behalf of South Carolina Electric & Gas Company, Progress Energy Carolinas, Incorporated, and Duke Energy Corporation, is the direct testimony of Dr. Julius A. Wright. Please accept the original and twenty-five (25) copies of this testimony for filing. Additionally, please acknowledge your receipt of this document by file-stamping the extra copy that is enclosed and returning it to me via our courier.

By copy of this letter, we are serving all other parties of record with a copy of the enclosed direct testimony and attach a certificate of service to that effect.

If you have any questions regarding this matter, please do not hesitate to contact me.

Very truly yours,

K. Chad Burgess

KCB/kms

Enclosures

cc: Nanette S. Edwards, Esquire  
Shannon Bowyer, Hudson, Esquire  
(All via hand delivery w/enclosures)

Pamela Greenlaw  
John F. Hardaway, Esquire  
Len S. Anthony, Esquire  
(All via first-class mail w/enclosures)

Ruth Thomas  
Catherine Heigel, Esquire  
Mel Jenkins

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**BEFORE THE**  
**PUBLIC SERVICE COMMISSION OF**  
**SOUTH CAROLINA**

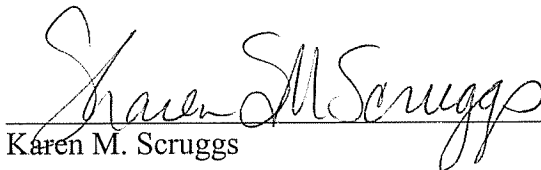
**DOCKET NO. 2005-385-E**

Petition of the Office of Regulatory Staff to Establish )  
Dockets to Consider Implementing the Requirements of )  
Section 1251 (Net Metering) of the Energy Policy Act )  
of 2005 )  
\_\_\_\_\_ )

**CERTIFICATE  
OF SERVICE**

This is the certify that I have caused to be served this day five (5) copies of the  
**Direct Testimony of Dr. Julius A. Wright** via hand delivery to the persons named  
below at the addresses set forth:

Nanette S. Edwards, Esquire  
Shannon Bowyer Hudson, Esquire  
Office of Regulatory Staff  
1441 Main Street, Suite 300  
Columbia, South Carolina 29201

  
\_\_\_\_\_  
Karen M. Scruggs

Columbia, South Carolina  
This 24<sup>th</sup> day of April 2007

FILED  
2007 APR 24 PM 3:52  
OFFICE OF THE  
PUBLIC SERVICE COMMISSION

**BEFORE THE**  
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**SOUTH CAROLINA**

**DOCKET NO. 2005-385-E**

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\_\_\_\_\_ )

**CERTIFICATE  
OF SERVICE**

This is to certify that I have caused to be served this day one (1) copy of the  
**Direct Testimony of Dr. Julius A. Wright** via U.S. Mail to the persons named below at  
the addresses set forth:

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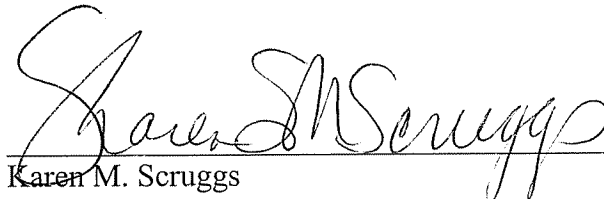
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\_\_\_\_\_  
Karen M. Scruggs

Columbia, South Carolina  
This 24<sup>th</sup> day of April 2007



**DIRECT TESTIMONY OF  
JULIUS A. WRIGHT, Ph.D.**

**ON BEHALF OF SOUTH CAROLINA ELECTRIC & GAS COMPANY,  
DUKE ENERGY CAROLINAS AND PROGRESS ENERGY CAROLINAS**

**PSCSC DOCKET No. 2005-385-E**

**I. INTRODUCTION**

1   **Q.     PLEASE STATE YOUR NAME, TITLE, AND BUSINESS ADDRESS.**

2   **A.**           My name is Julius A. Wright, President, J. A. Wright & Associates, LLC, 3037  
3           Loridan Way, Atlanta, Georgia 30339.

5   **Q.     FOR WHOM ARE YOU PRESENTING TESTIMONY IN THIS DOCKET?**

7   **A.**           I am presenting testimony on behalf of South Carolina Electric & Gas Company,  
8           ("SCE&G"), Duke Energy Carolinas, LLC ("Duke") and Carolina Power and Light  
9           Company, d/b/a Progress Energy Carolinas, Inc. ("Progress") or collectively referred to as  
10          the "Companies".

1   **Q.   PLEASE SUMMARIZE YOUR EDUCATION AND PROFESSIONAL**  
2   **EXPERIENCE.**

3  
4   **A.**           I received a Bachelor of Science degree in Chemistry from Valdosta State College  
5           in 1974. I later earned an MBA in Finance from Georgia State University in Atlanta,  
6           Georgia, a Masters and Ph.D. in Economics from North Carolina State University, where I  
7           focused on regulatory and environmental economics. I have completed the Michigan State  
8           Regulatory Course, several NARUC courses on regulation, and various management and  
9           investment seminars.

10           I am the President of J. A. Wright & Associates, LLC. Prior to starting my practice,  
11           I was a Client Partner for AT&T Solutions, Utilities and Energy Practice. Before that  
12           affiliation, I was a Utility Consultant for three years with EDS. Prior to that I was a  
13           Commissioner on the North Carolina Utilities Commission. I also served three terms in the  
14           North Carolina State Senate. During the time that I was a Senator, I was also a Senior  
15           Process Engineer with Corning Glass in its Fiber Optic Division. Prior to my work at  
16           Corning, I worked for four years in the chemical industry, first as a Process Chemist and  
17           later as a Senior Project Engineer.

18           In the course of my consulting work, I have addressed various regulatory issues,  
19           including: integrated resource planning; regulatory strategies for dealing with the transition  
20           to competitive electric and telecommunications markets; issues related to potentially  
21           strandable costs; prudence reviews; avoided cost determinations; rate forecasting; gas  
22           integrated resource planning; and, electric utility telecommunications strategies.

23           From 1985 to 1993, in my role as a commissioner on the North Carolina Utilities

Commission I was involved in numerous electric, gas, telecommunications, and water utility issues and decisions. My detailed resume is provided as Exhibit JAW-1.

**Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

**A.** The purpose of my testimony is to address certain issues raised by the Public Service Commission of South Carolina (the "Commission") in its November 13, 2006, Order Setting Deadline For Written Comments in this docket, and later in its March 15, 2007 letter directing that written testimony be filed regarding issues raised by the Energy Policy Act of 2005, ("EPA 2005"). Specifically, this hearing is to consider whether or not it is appropriate to adopt fuel source, fossil fuel generation efficiency planning, and net metering standards set forth in EPA 2005.

**Q. WHAT ARE YOUR RECOMMENDATIONS WITH REGARD TO THE SPECIFIC ISSUES BEING ADDRESSED IN THIS PROCEEDING?**

**A.** I recommend that the Commission find that it and these Companies have for some time been operating under existing statutes and rules related to fuel source and fossil fuel generation efficiency planning that are comparable to or more comprehensive than the standards proposed in EPA 2005. In addition, based on this conclusion, I recommend that the Commission find that the EPA 2005 standards are unnecessary and decline to adopt the proposals offered as amendments to the Public Utility Regulatory Policies Act of 1978 ("PURPA"). As I will discuss later in my testimony, this is similar to what this

1 Commission found regarding some of the earlier PURPA standards. With respect to the net  
2 metering standard, I recommend that the Commission adopt the net metering program or  
3 tariff proposal discussed in my testimony and offered by the Companies that is similar to  
4 net metering tariffs found in other states. I would add that my recommendations mirror the  
5 recommendations of the witness for the Office of Regulatory Staff (“ORS”), Mr. Randy  
6 Watts.

## 7 8 9 **II. BACKGROUND**

10  
11 **Q. CAN YOU PROVIDE A HISTORICAL PERSPECTIVE ON THE INITIATION OF**  
12 **THIS PROCEEDING?**

13  
14 **A.** Yes. The genesis of the current docket actually grew out of federal legislation and  
15 national energy initiatives begun in the 1970s. In 1978, the United States Congress passed  
16 PURPA, the basic purpose of which was to foster conservation of electricity, promote more  
17 efficient production of electricity, and to encourage among state utility regulators more  
18 consistent, and what many have termed, more equitable cost-based electric rate tariffs.<sup>1</sup> In  
19 promoting these goals, Title I of this 1978 law contained several standards to be considered,  
20 but not required to be adopted, by state regulatory commissions. These standards addressed

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<sup>1</sup> For example, see Bonbright, J. C, et. al., “Principles of Public Utility Rates,” Public Utility Reports, Inc., Arlington, VA., 2<sup>nd</sup> Edition, 1988, pp 416, 477; Phillips, Charles, “The Regulation of Public Utilities,” Public Utility Reports, Inc., Arlington, VA., 3<sup>rd</sup> Edition, 1993, pp 655-661.



1 such issues as (1) cost of service; (2) declining block rates; (3) time-of-use rates; (4)  
2 seasonal rates; (5) interruptible rates; and, (6) load management techniques.<sup>2</sup>

3 It is important to note that the adoption by state utility commissions of these new  
4 standards was optional, as clearly seen in the specific language of the law which stated,  
5 “each state regulatory authority (with respect to each electric utility for which it has  
6 ratemaking authority) and each nonregulated electric utility shall consider each standard”  
7 and then “make a determination concerning whether or not it is appropriate to implement  
8 such standard” (16 U.S.C. § 2621 (a) or PURPA SECTION 111, see Exhibit JAW-3). This  
9 same section of PURPA also indicated that “nothing in this subsection prohibits any state  
10 regulatory authority or nonregulated electric utility from making any determination that it is  
11 not appropriate to implement any such standard.”

12 In EPA 2005 there is a “prior state action” (Section 1251(d), Exhibit JAW-2)  
13 provision that permits states to consider prior actions that might have addressed the same  
14 issues and “grandfather” such actions in lieu of conducting an evidentiary hearing to  
15 address such standards. Regardless of the action taken, States were required by the law to  
16 specify in writing the reasons for their decisions. PURPA was amended by the Energy  
17 Policy Act of 1992 which added several additional standards to be considered. The issues  
18 in this docket have been generated by another amendment to PURPA contained in EPA  
19 2005.

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<sup>2</sup> It should be noted that this 1978 PURPA law may be best known for its Title II, which encouraged increased use of cogeneration and small power producers.

1   **Q.     PLEASE EXPLAIN THE AMENDMENTS TO PURPA FROM EPA 2005 WHICH**  
2       **ARE THE BASIS OF THIS PROCEEDING.**

3  
4   **A.**           EPA 2005 amended PURPA requiring state regulatory authorities, with respect to  
5       electric utilities, to consider whether or not to adopt several new electric energy efficiency  
6       standards. States could also be “grandfathered in” with respect to the proposed standards.  
7       Three of these standards are the focus of this proceeding:

- 8           • fuel diversity,
- 9           • fossil fuel generation efficiency, and
- 10          • net metering.

11       The statutory text of the specific PURPA amendments addressed in this proceeding is set  
12       forth in Exhibit JAW-2.

13  
14   **Q.     WITH RESPECT TO THE ISSUES INVOLVED IN THIS HEARING, WHAT**  
15       **SPECIFIC ACTION IS BEING REQUIRED OF STATE REGULATORS?**

16  
17   **A.**           Specifically, EPA 2005 requires that state regulatory commissions have a set period  
18       of time to begin consideration of the proposed new PURPA standards and an additional  
19       period of time in which they must complete their consideration and make a determination as  
20       to whether or not to adopt the standards. In addition, Section 111(b) of PURPA (see  
21       Exhibit JAW-3) requires state regulatory bodies to adhere to certain procedural guidelines  
22       in their consideration of the new standards. These procedural guidelines include the  
23       requirement that the regulatory body’s determination be made after public notice and a

1 hearing, and that such determination be “based upon findings included in such  
2 determination and upon the evidence presented at the hearing.” Moreover, if regulatory  
3 commissions decline to implement any of the proposed standards they must do so by  
4 specifying their decision and reasoning in writing (see Exhibit JAW-3, PURPA section  
5 111(c)). The current proceeding and any subsequent Commission Order should fully satisfy  
6 these procedural requirements.

7  
8 **Q. YOU MENTIONED STATES HAD A SET PERIOD OF TIME FOR RESPONDING**  
9 **TO THE THREE ISSUES THAT ARE THE SUBJECT OF THIS PROCEEDING.**  
10 **WHAT ARE THOSE TIMING DEADLINES?**

11  
12 **A.** Based on the enactment date of August 8, 2005, I conclude that state commissions  
13 have two years, until August 8, 2007 to begin consideration of the proposals and three  
14 years, until August 8, 2008 to complete their deliberations and issue an order as whether or  
15 not to adopt these three proposed standards.

16  
17 **Q. PLEASE BRIEFLY DISCUSS HOW STATES RESPONDED TO THE EARLIER**  
18 **REQUIREMENTS OF PURPA.**

19  
20 **A.** Several of the energy efficiency standards contained in the original PURPA in 1978  
21 were adopted by state utility commissions. However, some standards were not adopted and  
22 after hearings, some states determined that they had already examined these issues and  
23 adopted comparable standards prior to the enactment of PURPA. In South Carolina, this

1 Commission in Docket No. 79-300-E, Order No. 80-474, Section XI, August 29, 1980,  
2 found that Duke had adopted programs and tariffs essentially equivalent to PURPA's  
3 proposed standards on declining block rates, time-of-use rates, seasonal rates, and load  
4 management. In this same Order the Commission declined to adopt the proposed lifeline  
5 rate. Consequently, this Commission, in evaluating earlier standards under PURPA, has  
6 both rejected certain proposed standards, or in the alternative, concluded that the  
7 Commission and utilities had already undertaken activities essentially comparable to the  
8 proposed PURPA standards.

9  
10 **Q. YOU EARLIER MENTIONED THE IDEA THAT STATES COULD BE**  
11 **"GRANDFATHERED" IN WITH RESPECT TO COMPLYING WITH PURPA**  
12 **STANDARDS. PLEASE DISCUSS WHAT YOU MEAN BY THIS STATEMENT.**

13  
14 **A.** Grandfathering in this context means a State has already adopted or considered the  
15 adoption of comparable standards and therefore would not need to conduct a hearing to  
16 consider such standards. Referring to Exhibit JAW-2, with respect to the net metering, fuel  
17 source and fossil fuel generating efficiency standards, a state is in compliance with EPA  
18 2005 (see Section 1251 (3(d)) in EPA 2005) if:

- 19 • "the State has implemented for such utility the standard concerned (or a  
20 comparable standard);
- 21 • the State regulatory authority for such State or relevant nonregulated electric  
22 utility has conducted a proceeding to consider implementation of the standard  
23 concerned (or a comparable standard) for such utility;

- 1           • or the State legislature has voted on the implementation of such standard (or a  
2           comparable standard) for such utility."

3           If the above conditions have been met, then the obligation for a state regulatory body to  
4           hold a hearing and adopt the proposed new standard is waived. Based on my knowledge  
5           and understanding of electric utility operations and regulation in South Carolina, I believe  
6           that the State and this Commission, for a number of years, have operated with fuel diversity  
7           and fossil fuel generator efficiency standards at least comparable, if not exceeding these two  
8           EPA 2005 proposed standards. In so doing, the Commission, and likewise the Companies,  
9           are already in compliance with these generation-based standards and the Commission  
10          would not even be required to conduct a hearing on these issues, albeit the current  
11          proceeding meets the procedural guidelines regarding a hearing established by EPA 2005.

12  
13  
14                                   **III. GENERATION FUEL SOURCES**

15  
16   **Q.       WHAT IS BEING REQUIRED OF STATE REGULATORS WITH RESPECT TO**  
17   **THE ISSUE OF GENERATION FUEL SOURCES?**

18  
19   **A.**Specifically, the new standard requires that "each electric utility shall develop a plan  
20           to minimize dependence on one fuel source and to ensure that the electric energy it sells to  
21           consumers is generated using a diverse range of fuels and technologies, including  
22           renewable technologies" (Section 1251(12), Exhibit JAW-2).

1   **Q.   THE ACT DISCUSSES “USING A DIVERSE RANGE OF FUELS AND**  
2       **TECHNOLOGIES.” CAN YOU DEFINE THIS TERM?**

3  
4   **A.**           Fuel diversity has been defined by Costello<sup>3</sup> as a fleet of generation sources  
5       “deploying a mix of electric generation technologies with different fuel sources.” This is  
6       exactly how EPA 2005 defines generation fuel diversity although it specifically identifies  
7       and includes renewable technologies as part of a diverse fuel and technology mix.

8  
9   **Q.   WHAT IS THE POLICY OF THIS STATE AND COMMISSION WITH RESPECT**  
10       **TO FUEL SOURCE DIVERSITY?**

11  
12   **A.**           South Carolina Code Ann. § 58-33-430 requires the Companies to file an annual  
13       plan with a ten-year forecast of the demand and the energy resources that each Company is  
14       proposing to meet that forecast demand. This is usually filed in conjunction with an  
15       Integrated Resource Plan (“IRP”) required by § 58-37-40 which requires that electric  
16       utilities file a fifteen year resource plan. This IRP must include the electric utilities’ plans  
17       for meeting their future energy demand “in an economic and reliable manner, including  
18       both demand-side [which is specifically defined to include cogeneration and renewable  
19       energy resources] and supply-side options.” Pursuant to § 58-37-20, the Commission is  
20       encouraged to adopt policies that promote alternative energy supply options including  
21       conservation, cogeneration and renewable resources. Taken together, these specific  
22       generation planning policies of the State direct the Commission and these Companies to

1 undertake long range, ten plus year resource planning procedures, that consider a range of  
2 fuel and technology alternatives, including renewables, in planning future electric supply  
3 options.

4  
5 **Q. ARE THERE ANY ADDITIONAL STATE POLICIES WHICH CAN ADDRESS**  
6 **FUEL SOURCE DIVERSITY?**

7  
8 **A.** Yes. Section 58-33-110, requires electric utilities to acquire a Certificate of Public  
9 Convenience and Necessity ("Siting Certificate") prior to constructing a new generation  
10 facility. Section 58-33-160 requires the Commission to find in any Siting Certificate for  
11 construction for a generating facility that, among other things:

- 12 • "the basis of the need for the facility,"  
13 • the environmental impact considering the "state of available technology and the nature  
14 and economics of the various alternatives and other pertinent considerations,"  
15 • that the "facilities will serve the interests of system economy and reliability," and  
16 • that the "public convenience and necessity require the construction of the facility."

17 Thus, the overarching public policy of the state is for electric utilities to prove the need for  
18 any new generation facility, and include in that proof that the utility has considered a mix of  
19 generation resources (both fuel and technology), environmental impacts, efficiency and  
20 reliability, and that the facility is necessary in providing the citizens of the State adequate  
21 and reliable electric service from an efficient mix of resources.

22  

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<sup>3</sup> Costello, Ken, "A Perspective on Fuel Diversity," The Electricity Journal. Volume 18, Issue 4, May, 2005,

1   **Q.    HOW HAS THE COMMISSION CARRIED OUT THESE OVERALL ELECTRIC**  
2       **ENERGY RESOURCE PLANNING POLICIES?**

3  
4   **A.**       In response to these basic policy objectives, this Commission has been actively  
5       involved in both the planning and approval of electric generation resources, and it has  
6       consistently recognized the need for a diverse range of generation and alternative  
7       technologies. With respect to long-term planning of resources, as I indicated earlier, §  
8       58-33-430 requires the Companies to file an annual plan with a ten-year forecast of the  
9       demand for electricity as compared to the energy resources each Company is proposing to  
10      meet that forecast demand.

11           In addition, § 58-37-40 requires the Companies to file with the Commission, every  
12      three years and updated annually, an IRP that covers the next fifteen years. In this IRP the  
13      Companies are required by statute and by Commission IRP filing requirements to consider  
14      a wide range of energy options, both demand-side and supply-side. This annual report and  
15      the IRP are both reviewed by the Commission and the Office of Regulatory Staff (“ORS”)  
16      to ensure the State maintains an adequacy of reliable, efficient, cost effective energy supply  
17      “meeting the requirements shown in its forecast [the particular Company’s IRP forecast] in  
18      an economic and reliable manner, including both demand-side and supply-side options”  
19      (Docket No. 87-223-E, Order No. 98-502, July 2, 1998). This current IRP requirement  
20      indicates that a variety of resource options should be considered. Earlier IRP Orders  
21      discussed the need to ensure that utilities had a resource mix that was reliable and cost  
22      effective “while maintaining system flexibility and considering environmental impacts”



1 (Docket No.87-223-E, Order No. 91-885, October 21, 1981, Appendix A, IRP Objective).

2 The term “system flexibility” and the consideration of a wide range of energy resource  
3 options is clearly an indication that multiple fuel sources have been a consideration in South  
4 Carolina electric generation planning for at least the past two decades.

5  
6 **Q. HOW DO THESE UTILITIES INCORPORATE THIS GOAL OF GENERATION**  
7 **FUEL DIVERSITY INTO THEIR GENERATION PLANNING PROCESS?**

8  
9 **A.** The Companies’ generation resource planning processes are actually ongoing  
10 processes presented formally to the Commission in the resource planning filings  
11 mentioned above. These filings contain a description of each Company’s resource plan  
12 as well as the overall planning process. This planning process revolves around the use of  
13 sophisticated models that identify the least cost mix of generating resources that could be  
14 used to supply future electric demand given a variety of constraints, reliability concerns,  
15 and recognition of the need for a diverse mix of fuels and technologies. The Commission  
16 Staff, Commissioners, the ORS, and other intervenors review these filings.

17  
18 **Q. PLEASE DISCUSS SOME OF THE CONSTRAINTS THAT MUST BE**  
19 **CONSIDERED WHEN PLANNING GENERATING RESOURCES.**

20  
21 **A.** When utilities are considering future electric generating resource options, including  
22 purchase power or demand-side alternatives, they have a number of constraints that must be  
23 considered beyond simple fuel diversity. As a first principle, a basic overriding constraint

1 placed upon resource planning is that any plan must be consistent a primary IRP policy  
2 objective of a “least cost” resource mix, given a variety of considerations, including  
3 reliability and environmental considerations. For example, the initial IRP policy  
4 established by the Commission (Docket No. 87-223-E, Order No. 91-885, October 21,  
5 1991, Appendix A) stated:

6 “The objective of the IRP process is the development of a  
7 plan that results in the minimization of the long run total costs  
8 of the utility’s overall system and produces the least cost to  
9 the consumer consistent with the availability of an adequate  
10 and reliable supply of electricity while maintaining system  
11 flexibility and considering environmental impacts.”  
12

13 In today’s IRP process, which has been streamlined from the earlier years, there is  
14 still the requirement that a Company’s resource plan must meet “the requirements shown in  
15 its forecast in an economic and reliable manner, including both demand-side and supply-  
16 side options” and it must provide information related to the “environmental and economic  
17 consequences of the plan” (Docket No. 87-223-E, Order No. 98-502, July 2, 1998).

18 Consequently, any electric resource plan proposed by a utility is constrained by and  
19 must adhere to a basic requirement that it be economic or essentially “least cost” given  
20 relevant considerations. In evaluating generation or demand-side resources, other cost and  
21 risk factors that must be considered include fuel cost, fuel supply risks, capital costs,  
22 interest rate costs, environmental compliance costs and risks, siting costs and risks, and a  
23 number of additional factors. Perhaps the most important cost and risk factor to consider in  
24 the planning process is the reliability requirement that electric utilities must meet. In  
25 addition, a utility’s resource plan is constrained by the fact that its generation resources  
26 must meet the characteristics of its future load requirements, such as a peaking unit or  
27 baseload unit, each of which can dictate a different fuel option. Due to the fact that many of

1 these constraints are difficult or impossible to quantify, this means that any final generation  
2 resource plan will have an element of subjectivity, thus making the adoption of a strict,  
3 prescriptive, quantifiable fuel diversity standard impractical at best, and contrary to the  
4 public interest at worst.

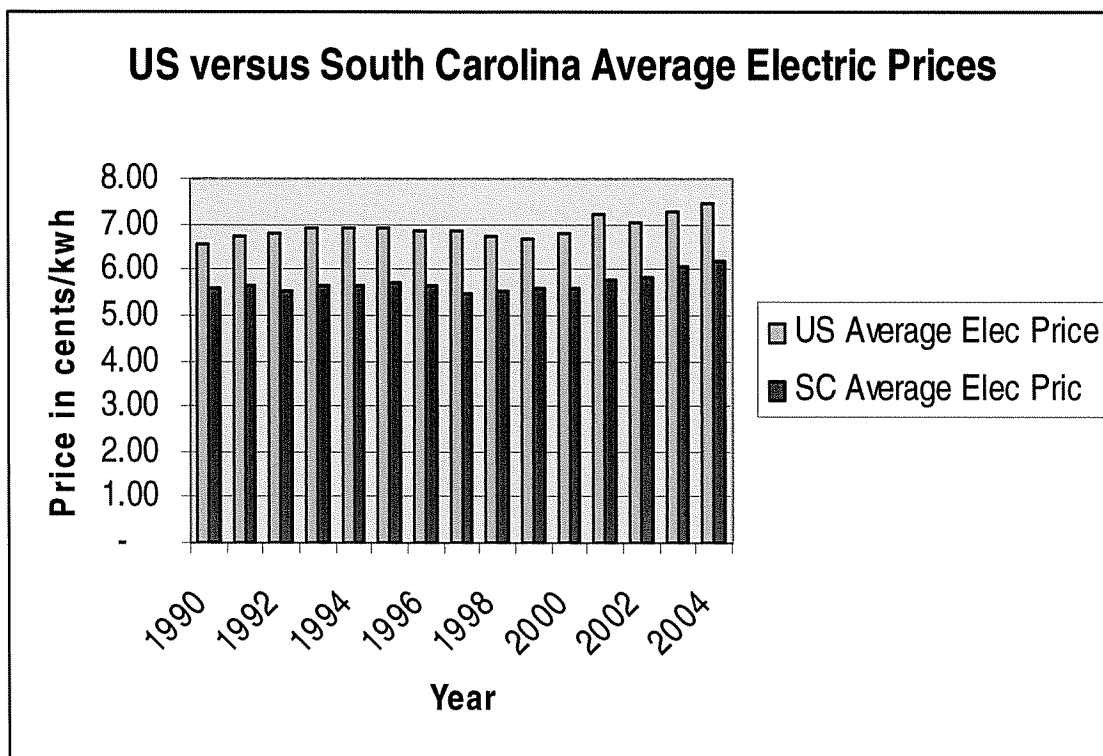
5  
6 **Q. BEYOND THIS ANNUAL REPORT AND IRP FILING, ARE THERE ANY**  
7 **ADDITIONAL ACTIVITIES THIS COMMISSION UNDERTAKES TO ENSURE**  
8 **THE STATE'S ELECTRIC UTILITIES HAVE, AND MAINTAIN, A PROPER AND**  
9 **DIVESRE MIX OF ELECTRIC GENERATION FUEL SOURCES?**

10  
11 **A.** The utilities have a statutory requirement, § 58-33-110 & 120, and Commission  
12 Rule 103-304, to file for a Siting Certificate for any new generating facility, and this filing  
13 allows the Commission to consider the issue of fuel and resource mix. The utilities are also  
14 required by § 58-27-865 to file monthly fuel reports and the Commission conducts annual  
15 fuel adjustment proceedings, each requiring the utilities to file a significant amount of  
16 information related to generation operating efficiency, fuel usage, and fuel costs. These  
17 reports and filings keep the Commission aware of the current generation fuel mix and  
18 generation operations with respect to meeting current demand. Importantly, the fuel  
19 adjustment proceedings also allow the Commission to review the fuel purchasing practices  
20 of the utilities in order to ensure that electric demand was met using an efficient, reasonably  
21 priced mix of fuel resources.

1   **Q.    IN ADDITION TO THE PLANNING AND APPROVAL PROCESSES YOU HAVE**  
2       **DISCUSSED, ARE THERE ANY OTHER METHODS THIS COMMISSION**  
3       **COULD USE TO EVALUATE THE OVERALL SUCCESS OF ITS ELECTRIC**  
4       **RESOURCE PLANNING, INCLUDING THE DIVERSITY OF ITS RESOURCE**  
5       **MIX?**

6  
7   **A.**       In addition to these filings, there are numerous publicly available documents the  
8       Commission can reference to compare the generation fuel and technology mix in South  
9       Carolina as compared to other states. Such a comparison is subjective at best and must be  
10      tempered by certain realities found in various states. For example, natural resources,  
11      geography, and public policy differ from state to state and will impact the appropriateness  
12      of generation resource fuel sources in a given state. However, an indirect but not  
13      unreasonable test of whether South Carolina has a reasonable level of generation fuel  
14      source and technology diversity could be found in a comparison of the State's electric rates  
15      to other states. As shown in the table below, for at least the last 15 plus years, South  
16      Carolina has had average electric rates below the national average. Because electric rates  
17      are based on costs, which are primarily generation and fuel related, such a comparison  
18      provides comfort that in terms of cost, resource mix, and generation efficiency, the  
19      historical operation and generation fuel mix in South Carolina have been favorable, in that  
20      it has provided the State's electric customers with reliable, low cost electricity – which is in  
21      fact the overriding public policy of the State.

1



2

3

EIA Form 861s and its reference is [http://www.eia.doe.gov/cneaf/electricity/epa/average\\_price\\_state.xls](http://www.eia.doe.gov/cneaf/electricity/epa/average_price_state.xls)

4

5

6 **Q. FROM YOUR PERSPECTIVE, DO THE UTILITIES HAVE A DIVERSE RANGE**  
7 **OF GENERATING FUEL RESOURCES?**

8

9 **A.** Yes. This opinion is based on this Commission's historical focus and policies with  
10 respect to maintaining a diverse generation fuel mix.

11

12

13

1   **Q.   WHAT IS YOUR RECOMMENDATION WITH REGARD TO WHETHER OR**  
2       **NOT THIS COMMISSION SHOULD ADOPT THE FUEL SOURCE STANDARDS**  
3       **PROPOSED BY EPA 2005?**

4  
5   **A.**       I believe the adoption of this standard in South Carolina is unnecessary. As I have  
6       shown in my testimony on this issue, the State and this Commission have adopted policies  
7       and rules that promote the goal of having a diverse mix of fuel and generation technology.  
8       Therefore, I believe the Commission should find that the State and these utilities have for  
9       some period of time been operating with a goal of a diverse generation mix and have not  
10      relied upon any one dominate generation fuel source. I would also recommend that because  
11      of these prior and ongoing initiatives that the Commission decline to adopt this EPA 2005  
12      fuel diversity standard.

13  
14  
15                   **IV. GENERATION EFFICIENCY**

16  
17   **Q.   WHAT IS BEING REQUIRED OF STATE REGULATORS WITH RESPECT TO**  
18       **THE ISSUE OF GENERATION EFFICIENCY?**

19  
20   **A.**       Specifically, this EPA 2005 proposed amendment to PURPA Section 1251(13)  
21       (Exhibit JAW-2) specifies that “Each electric utility shall develop and implement a 10-year  
22       plan to increase the efficiency of its fossil fuel generation.”

1   **Q.    WHAT IS THE POLICY OF THIS STATE WITH RESPECT TO PLANNING AND**  
2       **GENERATION PLANT EFFICIENCY?**

3  
4   **A.**       As I discussed earlier, § 58-33-430 requires the Companies to file an annual plan  
5       with a ten-year forecast of the demand and the energy resources each Company is proposing  
6       to meet that forecast demand. This is usually filed in conjunction with an IRP required by §  
7       58-37-40 which requires that electric utilities file a fifteen year plan. Further, § 58-37-10(2)  
8       indicates that this plan must include the electric utilities' plans for meeting their future  
9       energy demand "in an economic and reliable manner, including both demand-side [which is  
10      defined to include cogeneration and renewable energy resources] and supply-side options."  
11      Finally, Section § 58-33-160, a statute dealing with the requirements for the Commission to  
12      issue a Siting Certificate for a new generating facility, lists one of the requirements that the  
13      facility "will serve the interests of system economy and reliability." These statutes indicate  
14      that the State's policy in generation planning includes a long-term, ten plus year planning  
15      horizon that must consider a generation resource mix that is diverse, economical, reliable,  
16      and efficient.

17  
18   **Q.    HOW DOES THE COMMISSION ADHERE TO THESE PLANNING POLICIES**  
19       **REQUIRED BY SOUTH CAROLINA LAW?**

20  
21   **A.**       First, as indicated above, this Commission must issue a Siting Certificate for each  
22       new generating facility proposed by the Companies. In issuing this Siting Certificate the  
23       Commission must find that the new facility "will serve the interests of system economy and

1 reliability.” Second, the Commission requires these Companies to file an annual IRP,  
2 which contains an annual plan. This IRP is a long-term, fifteen year planning document  
3 that includes information about new energy resources and this Commission has stated in its  
4 IRP rules that a plan must meet “the requirements shown in its forecast in an economic and  
5 reliable manner” (Docket No. 87-223-E, Order No. 98-502, July 2, 1998). These two  
6 examples clearly indicate this State and this Commission require these Companies to  
7 develop long-term energy resource plans, and that economic efficiency is a goal of this  
8 planning process.  
9

10 **Q. ARE THERE ANY OTHER ACTIONS OF THIS COMMISSION CONCERNED**  
11 **WITH MONITORING FOSSIL GENERATION EFFICENCY?**  
12

13 **A.** Yes. § 58-27-865(B) requires the Commission and the ORS to annually review each  
14 of the Company’s fuel costs for the year. In the annual review the Commission is instructed  
15 in section (F) of this statute to “disallow recovery of any fuel costs that it finds without just  
16 cause to be the result of failure of the utility to make every reasonable effort to minimize  
17 fuel costs or any decision of the utility resulting in unreasonable fuel costs, giving due  
18 regard to reliability of service, economical generation mix, generating experience of  
19 comparable facilities, and minimization of the total cost of providing service.” In addition,  
20 section (C) of that same statute says that the “commission shall direct the electrical utilities  
21 to submit to the Office of Regulatory Staff monthly reports of fuel costs and monthly  
22 reports of all scheduled and unscheduled outages of generating units with a capacity of one  
23 hundred megawatts or greater.” These monthly reports also include some operating



1 performance data on all major baseload generating units. The combination of reviewing  
2 these annual fuel costs and monthly generation operation reports indicates there is an  
3 ongoing effort by both this Commission and the ORS to monitor generation performance  
4 and efficiency. In addition to the monthly reports, the Companies provide more detailed  
5 data to the ORS as a part of the ORS' comprehensive annual review of fuel costs, which  
6 includes a thorough review of each Companies' generating units' performance.

7  
8 **Q. WHAT OTHER ACTIVITIES ARE UNDERWAY THAT HAVE THE OBJECTIVE**  
9 **OF INCREASING THE COMPANIES FOSSIL GENERATING PLANT**  
10 **EFFICIENCIES?**

11  
12 **A.** There is a significant amount of ongoing activity in each utility that promotes,  
13 indeed requires, their engineers, plant managers, and plant operators to continually seek to  
14 improve operational efficiencies. The type of improvements often undertaken on a unit  
15 specific basis include feedwater heater replacements, turbine blade replacements, mitigation  
16 of air compliance impacts, improved system monitoring and operations, and condenser  
17 modifications.

18 Furthermore, in discussions with SCE&G, Progress and Duke, these Companies  
19 identified several engineering groups that are directly responsible for monitoring and  
20 improving generator plant performance and whose job performance review is tied to this  
21 activity. At Progress, these groups include individual plant operating and maintenance  
22 management and staff, and the Strategic Engineering group, which includes Strategic  
23 Engineers, Performance Engineers, and Combustion Engineers. The responsibilities of

1 these groups and individuals include identifying and evaluating new and innovative  
2 technologies that can improve plant efficiency; monitoring performance and identifying  
3 opportunities for improvement; and monitoring and improving combustion performance.  
4 All these activities directly relate to plant efficiency. At SCE&G, the capital budgeting  
5 process always has improving generation plant capacity factors and availability as  
6 budgeting priorities. In addition, Plant Managers, General Managers of Operations,  
7 Operations Engineers, and technical services support personnel all have an ongoing  
8 responsibility to improve generation plant performance. At Duke there are also a number  
9 of groups and individuals tasked with monitoring and upgrading fossil generation  
10 efficiency. Groups include the Plant Technical Team, various Plant Project Teams, Plant  
11 Operations, and Plant Maintenance. Individual titles of engineers assigned to tasks related  
12 to fossil efficiency improvements include Technical System Manager II, Technical  
13 Manager, Supervising Station Engineer, Senior Engineers, and others.

14  
15 **Q. ARE THERE ANY CONSTRAINTS OR LIMITATIONS THAT MUST BE**  
16 **CONSIDERED AS THE COMPANIES AND THIS COMMISSION CONSIDER**  
17 **GENERATION EFFICIENCY UPGRADES?**

18  
19 **A.** Yes. There are a variety of considerations and constraints that impact the efficiency  
20 of the Companies fossil generation fleet. Factors and circumstances, such as environmental  
21 compliance, which generally tends to decrease efficiency, fuel transportation issues, and  
22 seasonal operating constraints can all have a significant impact on generating plant  
23 performance and plans for efficiency upgrades.

1   **Q.   FROM YOUR PERSPECTIVE, IS THERE ANY OTHER MEANS FOR THIS**  
2       **COMMISSION TO EVALUATE THE CURRENT AND EXPECTED FUTURE**  
3       **EFFICIENCY OF THESE COMPANIES' FOSSIL GENERATION FLEET?**

4  
5   **A.**       As discussed in the Section above on fuel diversity, an indirect but not unreasonable  
6       test of whether South Carolina has an efficient fossil generation fleet and ongoing plans to  
7       increase this efficiency, is effectively reflected in a comparison of the State's electric rates  
8       to other states. As shown in the table in the preceding section, for at least the last decade  
9       and a half average electric rates in the State have been below the national average. Because  
10      these electric rates are based on costs, which are primarily related to generation costs and  
11      efficiency, such a comparison provides comfort that the historical operation of the State's  
12      fossil generation fleet has been efficient and that these utilities and this Commission can be  
13      expected to continue to promote improvements to increase this efficiency.

14  
15   **Q.   WHAT IS YOUR RECOMMENDATION WITH REGARD TO WHETHER OR**  
16       **NOT THIS COMMISSION SHOULD ADOPT THE FOSSIL GENERATION**  
17       **EFFICIENCY STANDARD PROPOSED BY EPA 2005?**

18  
19   **A.**       As with the fuel diversity standard, I believe the adoption of the fossil fired  
20       generation efficiency planning standard is unnecessary in South Carolina. As I have shown  
21       in my testimony on this issue, the State and this Commission have adopted and for many  
22       years been operating with a ten year plus planning cycle that promotes the goal of continual  
23       improvements in generation efficiency. Furthermore, this Commission, the ORS, and the

1 Companies' employees, all have ongoing efforts to monitor and improve the operating  
2 efficiencies of the generation fleet. Therefore, I would recommend the Commission find  
3 that the State and these Companies, for some period of time, have been operating with an  
4 annual ten year planning horizon and fossil generation efficiency objectives at least  
5 comparable, if not more comprehensive, to what is being proposed by EPA 2005. I would  
6 also recommend, because of these prior and ongoing initiatives that the Commission decline  
7 to adopt this EPA 2005 fossil generation efficiency standard.

8  
9 **V. NET METERING**

10  
11 **Q. PLEASE EXPLAIN HOW EPA 2005 ADDRESSED THE ISSUE OF NET**  
12 **METERING.**

13  
14 **A.** EPA 2005, Section 1251 (11), (see Exhibit JAW-2) requires that state regulators  
15 undertake a proceeding to consider whether or not to adopt the following net metering  
16 standard which amended Section 111(d) of PURPA by adding at the end:

17  
18 *"NET METERING - Each electric utility shall make available upon request net*  
19 *metering service to any electric consumer that the electric utility serves. For*  
20 *purposes of this paragraph, the term 'net metering service' means service to an*  
21 *electric consumer under which electric energy generated by that electric consumer*  
22 *from an eligible on-site generating facility and delivered to the local distribution*

1                   *facilities may be used to offset electric energy provided by the electric utility to the*  
2                   *electric consumer during the applicable billing period.”*  
3

4           Summarizing, the proposed standard requires that each electric utility make available net  
5           metering service upon a request from any customer with an eligible on-site generating  
6           facility.  
7

8   **Q.     PLEASE DESCRIBE IN MORE DETAIL WHAT NET METERING MEANS.**  
9

10   **A.**       "Net-metering" is essentially a simplified method of metering the net energy  
11           consumed and produced at a home or business that has its own qualifying generation  
12           facility. Under existing federal law (PURPA, Section 210), utility customers can use  
13           electricity generated by a qualifying facility ("QF") to displace the electricity they would  
14           otherwise purchase from their electric utility. If the customer produces any excess  
15           electricity (beyond what is needed to meet the customer's own needs) the utility purchases  
16           that excess electricity at the utility's avoided cost rates. The excess energy is usually  
17           metered using an additional meter which is installed at the customer's expense. Net  
18           metering simplifies this arrangement by allowing the customer to net any excess electricity  
19           against electricity used at other times. The billing period for net metering may be either  
20           monthly or annually. As I will explain in more detail later in my testimony, the most  
21           important issue with regard to net metering is the amount of the credit the customer receives  
22           for the excess generation. The credit should not be equal to the utility's retail electric rate

1 because that rate includes much more than generation costs. Also, the credit must reflect  
2 the time of day the generation is produced.

3  
4 **Q. PLEASE DESCRIBE A QUALIFYING FACILITY.**

5  
6 **A.** A QF is a generating facility which meets the requirements for QF status established  
7 under PURPA part 292 (found in JAW Exhibit-4) of the FERC's regulations, and which has  
8 obtained certification of its QF status. There are two types of QFs: cogeneration facilities  
9 and small power production facilities. A cogeneration facility is a generating facility that  
10 produces electricity and another form of energy (such as heat or steam) used for industrial,  
11 commercial, residential or institutional purposes, and otherwise meets the requirements of  
12 18 C.F.R. §§ 292.203(b) and 292.205 (found in JAW Exhibit-4) for operation, efficiency  
13 and use of energy output. A small power production facility is a generating facility whose  
14 primary energy source is renewable (hydro, wind, solar, etc.), biomass, waste, or  
15 geothermal resources, and that otherwise meets the requirements of 18 C.F.R. §§  
16 292.203(a), 292.203(c) and 292.204.

17  
18 **Q. ARE THERE USUALLY LIMITS PLACED ON QUALIFYING FACILITIES THAT**  
19 **MAY BE NET METERED?**

20  
21 **A.** Yes, in most cases where states have adopted a net metering tariff there are both  
22 technology and size limitations placed on net metered facilities.

1   **Q.   WHY SHOULD STATES ADOPT SIZE LIMITATIONS ON NET METERED**  
2   **GENERATION FACILITIES?**

3  
4   **A.**           One major reason to adopt net metering size restrictions is based on the reliability of  
5   net metered generation as compared to a utility's traditional generating units. For example,  
6   most net metered applications are not capable of controlling with any degree of  
7   predictability when they will run (such as photovoltaics or wind). Therefore, they simply  
8   cannot be counted on to be available on a twenty four hour a day, seven day a week basis.  
9   Having a large amount of unpredictable generation resources on a utility's system will  
10   increase costs (because the utility must backstand the unpredictable net metered generation)  
11   and could harm reliability. Another reason to adopt size restrictions is the size of the  
12   generation should be comparable to the customer's own on-site load. In other words, the  
13   generation should not be oversized to allow the net metering customer to essentially be an  
14   unregistered, unregulated merchant generator. An additional reason to limit the size is to  
15   limit the potential subsidization by the utility's other ratepayers. To limit these subsidies,  
16   regulators in most states that have adopted net metering have adopted both size and  
17   technology limitations.

1   **Q.   PLEASE DISCUSS THE APPROPRIATE CREDIT TO BE APPLIED TO NET**  
2       **METERING CUSTOMERS AND HOW THIS LIMITS SUBSIDIZATION OF NET**  
3       **METERERS BY OTHER CUSTOMERS.**

4  
5   **A.**           A net metering customer often furnishes electricity to the utility in off-peak hours  
6       while it uses electricity from the utility in the on-peak hours. The net metering model  
7       adopted by this Commission should not treat these electricity exchanges as being of equal  
8       value. The on-peak electricity costs more to produce than the off-peak electricity.  
9       Consequently, the utility should not be required to pay the net metered customers a high  
10      price (such as on-peak power rates) for off-peak produced, low value power. To do  
11      otherwise results in the utility and its ratepayers paying the net metered customer a subsidy  
12      for the electricity that the net metering customer produces.

13               A second cost issue, mentioned earlier in my testimony, relates to the fact that a net  
14      metering customer, by virtue of exchanging electricity on a kWh for kWh basis, could  
15      escape paying its appropriate share of the total system costs incurred to serve it.  
16      Specifically, if the net metering customer is given a credit equal to the utility's retail rate it  
17      is essentially receiving a discount on its share of the distribution, transmission, back office  
18      support, and similar system-wide costs, meaning that other ratepayers must subsidize the  
19      net metering customer with respect to these basic facilities costs. Another cost concern is  
20      related to the fact that a utility must be prepared to provide standby service for all of its  
21      customers, including net metered customers. This standby service is a cost to the utility and  
22      its ratepayers, however, net metering customers could escape paying for this service and  
23      thus be subsidized by other ratepayers absent sufficient tariff protections.



1   **Q.   WHAT TARIFF PROTECTIONS ARE NECESSARY TO PROTECT AGAINST**  
2       **THE COST SUBSIDIZATION ISSUES YOU MENTIONED ABOVE?**

3

4   **A.**           There are at least three tariff provisions that are essential to minimizing some of the  
5       cross subsidy concerns. First, the tariff should have some type of demand charge or facility  
6       charge to help ensure that net metering customers pay a reasonable share of the fixed asset  
7       costs of serving them, including transmission and distribution facilities costs. Absent a  
8       demand charge these costs would be shifted to other ratepayers. Second, a tariff must  
9       differentiate between the value of on-peak and off-peak power. Both of these issues can be  
10      reasonably addressed by an appropriately designed time-of-use tariff under which net  
11      metered customers would be required to participate. Such a tariff would include a time-of-  
12      use based demand rate, a time-of-use based energy rate, and a basic facilities charge. This  
13      type of rate design attempts to recapture from net metering customers a share of the basic  
14      facilities costs and attempts to properly account for the difference in the value of on-peak  
15      and off-peak electricity. The time-of-use demand rate also attempts to recapture some of  
16      the costs associated with the utility providing standby service for the net metered customers.  
17      A third restriction would be to limit the size and total capacity of net metered units.

18

19   **Q.   IF THE COMMISSION ADOPTS NET METERING, SHOULD IT ADOPT**  
20       **TARIFFS WITH THESE PROTECTIONS?**

21   **A.**           Yes.

22

1   **Q.    WHAT ARE THE POTENTIAL BENEFITS OF NET METERING?**

2

3   **A.**           The primary benefit is the support and encouragement of non-utility electric  
4           providers, particularly renewable energy.   In so doing, the adoption of a net metering  
5           program supports both renewable energy with its related environmental benefits as well as  
6           fuel diversity.   To the extent these are the goals of the state and this Commission, the  
7           adoption of a net metering program with an appropriately designed tariff option would lend  
8           active support to those goals.

9

10   **Q.    HAVE OTHER STATES ADOPTED NET METERING STANDARDS?**

11

12   **A.**           Yes, depending on which study or survey one examines, upwards of forty states  
13           have adopted a net metering standard or tariff

14

15   **Q.    HAVE OTHER STATES PLACED LIMITATIONS ON THEIR NET METERING**  
16   **TARIFFS?**

17

18   **A.**           Yes.   My review indicates that most states placed a size limit ranging from 10kw-  
19           30kw for net metering residential customers, and 100kw or less for commercial systems.   In  
20           addition, the eligible technologies are limited to renewables, sometimes limited to just  
21           photovoltaic and wind, with other states including solar thermal, small hydro, and a variety  
22           of other renewables.   My review also indicates approximately two-thirds of the states with  
23           net metering tariffs also placed limits on the total capacity of net metering allowed.   As one

1 might expect, states with a deregulated retail electric marketplace tended to be less  
2 restrictive in their net metering rules.

3  
4 **Q. ARE THERE ANY OTHER PROTECTIONS RELATED TO NET METERING**  
5 **THAT THIS COMMISSION SHOULD ADOPT?**

6  
7 **A.** Yes, I would recommend that the Commission specify that any renewable energy  
8 credits, often called green tags, associated with excess energy production realized any time  
9 an accumulation of excess generation credits are zeroed out for the net metered customer,  
10 be the property of and granted to the utility. To the extent these may have some future  
11 value it will help offset some of the net metering costs paid for by other customers.

12  
13 **Q. IF THE COMMISSION DECIDES TO ADOPT NET METERING, WHAT TYPE OF**  
14 **NET METERING STANDARD ARE YOU PROPOSING FOR THIS COMMISSION**  
15 **TO APPROVE FOR SOUTH CAROLINA?**

16  
17 **A.** I would propose a standard very similar to the one recently adopted in North  
18 Carolina and presented in the testimony of Duke witness Yarborough and Progress witness  
19 Evans.

20 This standard restricts the size of the net metered facility to 20 kw for residential  
21 customers and 100 kw for a non-residential. It also restricts the total net metered capacity  
22 to no more than 0.2% of each Company's retail peak load. I would also restrict the  
23 technology to solar photovoltaic, wind, micro-hydroelectric, and biomass fueled facilities.

As the table below illustrates, this standard is fairly comparable to the net metering rules adopted in our neighboring Southeastern states.

STATE	TECHNOLOGIES ALLOWED*	RESIDENTIAL SIZE LIMIT	COMMERCIAL SIZE LIMIT	OVERALL ENROLLMENT LIMIT**
North Carolina	PV, W, LG, B, SH	20 kw	100 kw	0.2 % of peak
Georgia	PV, W, FC	10 kw	100 kw	0.2% of peak
Florida (JEA)	PV, W	10 kw	None	None
Alabama	None			
Mississippi	None			
Louisiana	PV, W, B, SH, FC, G, MT	25 kw	100 kw	None
Kentucky	PV	15 kw	15 kw	0.1 % of peak
Arkansas	PV, W, B, SH, G, FC, ST, MT	25 kw	100kw	none

\* PV = photovoltaics, W=wind, FC= fuel cells, LG = landfill gas, B = biomass, SH = small hydro, G = geothermal, MT = microturbines, ST = solar thermal

\*\* This is based on each supplier's retail load peak, not the state as a whole

**Q. WHAT ARE THE BENEFITS OF THIS PROPOSED NET METERING STANDARD FOR THE STATE AND ITS ELECTRIC CONSUMERS?**

**A.** In adopting the proposed net metering rule the Commission is actively promoting small renewable resources to be further developed in South Carolina along with any positive environmental benefits and an increase in fuel diversity. In addition, by adopting standards comparable to our neighboring Southeastern states renewable suppliers will have

1 just as much incentive to promote their systems in South Carolina as in other Southeastern  
2 states. Also, adopting a net metering policy identical to that in North Carolina will facilitate  
3 administration of the policy for Duke and Progress, which serve customers in both states.

4  
5  
6 **VI. CONCLUSION**  
7

8  
9 **Q. PLEASE SUMMARIZE YOUR FINDINGS AND YOUR RECOMMENDATIONS**  
10 **TO THIS COMMISSION.**  
11

12 **A.** In the main body of this testimony I have reviewed three proposed energy efficiency  
13 standards contained within EPA 2005 and requiring state regulatory action. My  
14 recommendations, which I summarize here, are in agreement with ORS witness Watts. The  
15 first proposed standard dealt with the requirement that electric utilities have a diverse mix  
16 of generation units in order to minimize reliance upon one fuel source. As I discussed in  
17 this testimony, it is the overall policy of the State and this Commission that Duke, SCE&G,  
18 and Progress maintain a diverse array of generation technologies and fuel mix. Moreover,  
19 this Commission has been actively involved in both the planning and final approval of  
20 electric generation resource needs. This planning and development process has resulted in  
21 all three Companies having a diverse generating fleet, with respect to both fuel and  
22 technology, and they do not have undue reliance upon one fuel source.

23 The second standard proposed that utilities develop a ten year plan to increase the  
24 efficiency of their fossil fuel generation. Similar to the fuel efficiency standard discussed  
25 above, as I show in this testimony, it has long been the policy of this State and this

1 Commission to conduct long range planning of at least ten years, including an ongoing  
2 effort to achieve maximum efficiency from all of the utilities' generating units. Moreover,  
3 the Companies have incentives to continue to search for increased efficiencies from their  
4 generating units and this Commission has ongoing activities to monitor generation unit  
5 efficiency and any planned upgrades.

6 With respect to these two generation efficiency standards, the policies of this State,  
7 along with the rules and various Orders of this Commission, have promulgated and support  
8 activities that meet and exceed these two proposed PURPA standards. Therefore, I believe  
9 the Commission should find that the State and its utilities have for some time been  
10 operating with generation efficiency standards at least comparable to what is being  
11 proposed. Based on this finding I would recommend that this Commission find that these  
12 two proposed generation efficiency standards are unnecessary and decline to adopt the  
13 standards.

14 The third proposed standard would require that utilities offer net metering. This  
15 proposal is aimed primarily at encouraging renewable generation. With respect to this issue  
16 I have recommended that, if the Commission elects to adopt net metering, the Commission  
17 should adopt a net metering rule with the same restrictions and parameters as the one  
18 recently adopted in North Carolina.

19  
20 **Q. DOES THIS CONCLUDE YOUR TESTIMONY?**

21  
22 **A.** Yes.

1  
2  
3  
4  
5  
6  
7  
8  
9

## **EXHIBIT JAW-1**

1 Julius A. "Chip" Wright is the President of J. A. Wright and Associates, 3037 Loridan Way,  
2 Atlanta, GA, 30339; 770-956-1225; [jawright@mindspring.com](mailto:jawright@mindspring.com).

3  
4 Experience Overview

5 Prior to starting his firm, Dr. Wright was a Client Partner for AT&T Solutions Utilities and Energy  
6 Practice and before that a Principal in EDS' Management Consulting Services. Dr. Wright has  
7 been consulting electric gas, and telephone utilities on regulation, economics, rates, production  
8 modeling and strategic planning for the past three years. Prior to this Dr. Wright served an eight-  
9 year term as a Utility Commissioner for the state of North Carolina. Prior to that he served three  
10 terms in the North Carolina State Senate while he was a senior project engineer for Corning Glass  
11 Works on their optical wave guide project in Wilmington, North Carolina. He has a total of 14  
12 years' government-related experience, 12 years' plant-related engineering experience, and he has  
13 established two companies.

14 While serving on the North Carolina Utility Commission, he served four years on the National  
15 Association of Regulatory Utility Commissioners (NARUC) Electricity Committee. He has served  
16 in various other advisory capacities, including the Keystone Committee on Externalities; the  
17 North Carolina Radiation Protection Committee, and on an Oversight Committee for a joint North  
18 Carolina/New York/ Department of Energy (DOE) project.

19  
20 Dr. Wright has also served on the Southern States Energy Board Task Force on Restructuring the  
21 Electric Utility Industry.

22 **Electric Competition Natural Gas, and Regulatory Strategy**

- 23 • *"Energy Deregulation,"* March 2001, report of the California State Auditor on the causes of the  
24 problems related to high electric prices and blackouts (from May, 2000 through June 2001, and  
25 ongoing) in California's restructured electric marketplace. Dr. Wright was one of three  
26 consultants who essentially researched and prepared the State Auditor's report.
- 27 • Principal author with Dr. Al Danielsen of *"Reliability of Electric Supply In Georgia,"* published  
28 by The Bonbright Utilities Center, University of Georgia, June, 2001.
- 29 • Presented testimony before the North Carolina Public Utilities Commission on behalf of  
30 SCANA Corporation regarding issues related to market power in its merger with Public  
31 Service Company of North Carolina, Docket No. G-5, Sub 400; G-3, Sub 0.
- 32 • Was the principal author of a report and investigation titled *"An Analysis of Commonwealth*  
33 *Edison's Planning Process For Achieving Reliability of Supply,"* which was an investigation of the  
34 Company's planning process to meet its statutory obligation for supplying electricity as  
35 Illinois transitions to a competitive retail electric market, Illinois Commerce Commission  
36 Docket No. 98-0514.



- 1 • Co-authored a national study that used computer modeling techniques to quantify the impact  
2 of electric competition on the aggregate economy in each of the 48 continental United States.
- 3 • Presented testimony to Louisiana Legislative Committee on behalf of Entergy Corporation  
4 regarding the various regulatory and technical issues that need to be addressed in the  
5 transition to competition.
- 6 • Presented testimony For Virginia Power with regard to its transition to competition plan.
- 7 • Testified before the Mississippi Public Service Commission on issues related to the  
8 establishment of retail electric competition, including ISO establishment, regional power  
9 exchanges, legislation, taxes and regulatory polices.
- 10 • Presented testimony for Entergy Corp. in both Louisiana and Arkansas in support of its  
11 transition to competition filing.
- 12 • Worked with three major southeastern utilities on developing business and regulatory  
13 strategy as they prepare for competition.
- 14 • Filed a report with the South Carolina Legislature that studied the impact of electric  
15 competition on the state of South Carolina.
- 16 • Was a panelist on a Southern Gas Association national televised forum on performance based  
17 regulation for the natural gas industry.
- 18 • Was the lead policy witness for South Carolina Electric and Gas on obtaining regulatory  
19 approval to transfer depreciation reserve from a nuclear plant to T&D depreciation reserve.  
20 This is a critical issue in preparing for competition and limiting stranded investment.
- 21 • Developed regulatory and marketing strategy for ENTERGY with regard to its  
22 telecommunications initiatives. In these efforts he worked with the EDS Telecommunications  
23 Consulting Group.
- 24 • Led an analysis of the prudence of Central Vermont Public Service Company's power and  
25 resource acquisitions over a five year period. The prudence of this utility's power supply  
26 strategy was under investigation in a rate case proceeding. Dr. Wright's team filed testimony  
27 supporting the Company and their efforts were instrumental in undermining the charges of  
28 imprudence brought by the Company's opposition.
- 29 • Developed an EDS intra-company task force to address the issues related to FERC's  
30 Transmission NOPR. This task force subsequently filed three responses to FERC's Open  
31 Access NOPR which provide a basis for EDS to maintain a leadership position as the electric  
32 utility industry undergoes restructuring to a competitive market.
- 33 • Helped develop a regulatory strategy and presented testimony on behalf of South Carolina  
34 Pipeline. In this case, an economic analysis prepared by Dr. Wright and Dr. Frank Cronin  
35 (from EDS Economic Planning and Analysis Consulting Group) was presented along with

1 recommendations. Their analysis and recommendations were generally accepted by the  
2 Commission staff.

### 3 **Resource Planning & Economic Analysis**

4 As a Commissioner he has been involved in a variety of resource planning issues including  
5 chairing the last North Carolina Resource Planning hearing that involved Duke Power Company,  
6 Carolina Power and Light, Virginia Power Company and the North Carolina Electric Membership  
7 Corporation.

8 He was also selected by the states of North Carolina and New York and the Department of Energy  
9 to be one of five representatives on a peer review panel overseeing a Resource Planning project  
10 being conducted by the Oak Ridge National Laboratories.

11 In addition to these initiatives Dr. Wright has:

- 12 • Was the principal author of a report and investigation titled "*An Analysis of Commonwealth*  
13 *Edison's Planning Process For Achieving Reliability of Supply*," which was an investigation of the  
14 Company's planning process to meet its statutory obligation for supplying electricity as  
15 Illinois transitions to a competitive retail electric market, Illinois Commerce Commission  
16 Docket No. 98-0514.
- 17 • Was the lead policy witness for South Carolina Electric and Gas on obtaining regulatory  
18 approval to transfer depreciation reserve from a nuclear plant to T&D depreciation reserve.  
19 This is a critical issue in preparing for competition and limiting stranded investment.
- 20 • Was instrumental in acquiring a large engagement for a major southeastern utility examining  
21 their competitive position as it relates to a competitive electric market. During the  
22 engagement he provided input and guidance on regulatory issues related to the deregulation  
23 of the electric industry.
- 24 • Assisted Carolina Power and Light Company in their integrated resource planning process by  
25 advising and facilitating a Commission directed public policy panel.
- 26 • Developed an overview of Niagara Mohawk Gas' integrated resource planning efforts. This  
27 engagement was under a contract from Oak Ridge National Laboratories.

### 28 **Cost of Service, Rate Design, Forecasting**

29 While serving more than eight years on the North Carolina Commission, Dr. Wright was involved  
30 in several cost of service and rate design analyses, testimonies, and orders. This included work in  
31 electric, telephone, gas, and water utilities. Additionally, he has presented testimony on  
32 performance based ratemaking and he has been involved in analyzing electric utility forecasting  
33 models, including end-use models, regression analysis (both linear and nonlinear) and customer  
34 discrete choice modeling forecasts. Furthermore, Dr. Wright's Ph.D. is in environmental and  
35 regulatory economics with special research into nonlinear minimal cost optimization procedures

for electric utility production models. This work included optimizing investments, optimal regulatory regimes, pricing, cost recovery, and rate of return issues.

In addition, he has:

- Provided an economic analysis of the proper regulatory regime for South Carolina Pipeline Company. In this analysis he presented testimony supporting performance based rate making and his recommendations were generally accepted by the Commission staff.
- Developed forecasted rates for two New York state utilities. These rates were developed to support a bond filing by a cogenerator.
- Provided a forecast of power payments from New York State Electric and Gas (NYSEG) to two independent power producers (IPPs). This forecast was used to estimate the level of overpayments by NYSEG to these IPPs, under PURPA regulations, which he used in a filing before FERC supporting the company's claim of unlawful overpayments.

### **Telecommunications**

As a Commissioner he has regulated all types of telecommunications providers for eight years. In addition, he has worked with two electric utilities in strategy formulation in regard to their entering the telecommunications business. Furthermore, he has eight years experience as a fiber optic engineer.

### **Other Areas of Expertise**

Prior to joining EDS, he worked for eight years as a senior process engineer for Corning Glass in the design and production of optical waveguides (or fiber optics). Prior to that he worked for four years in the chemical industry as a process chemist and later as a senior project engineer. He has done work in environmental monitoring, process and product improvement, plant utilization, as well as starting and selling two successful companies - one in the financial leasing business and the other in the entertainment industry.

### **Presentations and Publications**

*"Energy Deregulation,"* March 2001, report of the California State Auditor on the causes of the problems related to high electric prices and blackouts (from May, 2000 through June 2001, and ongoing) in California's restructured electric marketplace. Dr. Wright was one of three consultants who essentially researched and prepared the State Auditor's report.

*"Low Cost States and Electric Restructuring - The Issue is the Price!"* presented to the 1999 Miller Forum on Government, Business and the Economy, University of Southern California, April 19, 1999.

- 1    *An Analysis of Commonwealth Edison's Planning Process For Achieving Reliability of Supply*, Illinois  
2    Commerce Commission Docket No. 98-0514.
- 3
- 4    *The Impact of Competition on the Price of Electricity*, author, published by L. A. Wright and  
5    Associates, November, 1998.
- 6
- 7    "Retail Competition in the Electric Industry: The Impact on Prices," presented at the 18<sup>th</sup> Annual  
8    Bonbright Center Energy Conference, Atlanta, Georgia, Sept. 10, 1998.
- 9    *Potential Economic Impacts of Restructuring the Electric Utility Industry*, co-author, published by the  
10    Small Business Survival Committee, Washington, DC, November, 1997.
- 11    "How Deregulation Will Affect Power Quality and Energy Management," presented at the Power  
12    Quality and Energy Management Conference co-sponsored by Entergy and EPRI, New Orleans,  
13    LA, Nov. 14, 1997.
- 14    "Deregulation of the Electric Industry," *Proceedings: National Business Energy Forum*, June 26, 1997,  
15    New Orleans, LA.
- 16    "A Different View of the Market," presented at the Southeastern Electric Exchange Conference,  
17    June 25, 1997, Charlotte, N.C.
- 18    "Restructuring The Electric Utility Industry: Theory vs. Reality," presented at the American Bar  
19    Association Restructuring Conference, Raleigh, NC, Dec. 5, 1996.
- 20    "Restructuring: The Best Approach for Virginia," presented at the Virginia State Corporation  
21    Commission Electricity Restructuring Forum, Charlottesville, VA, Nov. 15, 1996.
- 22    "Alternative Rate Making for the Natural Gas Industry: State Issues," presented at the Tenth  
23    Annual NARUC Biennial Regulatory Information Conference, Columbus, Ohio, Sept. 12, 1996.
- 24    "RetailCo: To Regulate or Not?" presented at the 9<sup>th</sup> Annual Automatic Meter Reading  
25    Symposium, New Orleans, La., Sept. 10, 1996.
- 26    "Convergence: The Competitive Revolution Comes To Electric Power," presented to the  
27    Southeastern Association of Regulatory Commissioners Annual Convention, Point clear,  
28    Alabama, June 4, 1996.
- 29    "Stranded Assets Recovery Issues," presented at the Western Electric Power Institute: Financial  
30    Forum, Tucson, Arizona, March 8, 1996.
- 31    "The Deregulation of the Electric Utility Industry : Current Status," presented at the North  
32    Carolina Economic Developers Association Midwinter Conference, Pinehurst, N.C., February 23,  
33    1996.

- 1 "Performance Based Regulation for The Natural Gas Industry," panelist on Southern Gas  
2 Association's Televised Regulatory Forum, Dallas, Texas, Jan. 18, 1996.
- 3 "Industry Structure Should Meet Stakeholder Objectives," *Electric Light and Power*, Jan., 1996.
- 4 "Quantifying the Value of Stranded Investment: A Dynamic Modeling Approach," *Proceedings:*  
5 *Implementing Transmission Access and Power Transactions Conference*, Denver, Colorado, Dec. 14,  
6 1995.
- 7 "Quantifying the Value of Stranded Investment: A Dynamic Modeling Approach," at the 15<sup>th</sup>  
8 Annual Bonbright Center Electric and Natural Gas Conference, October 9-11, 1995, Atlanta,  
9 Georgia.
- 10 Comments to FERC in the matter of Notice of Proposed Rulemaking on Open Access, Docket No.  
11 95-9-000, 1995.
- 12 "The Road to Competition for Re-Regulated Industries," presented at the 1995 PROMOD users  
13 Forum, St. Petersburg, Florida, May 1, 1995.
- 14 "Comparing New York State Electric and Gas Corporation's Non-Utility Generator Payments to Current  
15 Avoided Cost Rates," report submitted in support of affidavit filed before FERC in Docket No. EL  
16 95-28-000.
- 17 "A Solution To The Transmission Pricing and Stranded Investment Problems" *Public Utilities*  
18 *Fortnightly*, January 1995.
- 19 "Electric Utility Competition: The Winning Focus," presented at 1994 Southeastern Electric and  
20 Natural Gas Conference, Atlanta, Georgia, October 1994.
- 21 "Gas Integrated Resource Planning: The Niagara Mohawk Experience," for Martin Marietta Energy  
22 Systems, Inc., under contract to the United States Department of Energy, ORNL/SUB/93-03369.
- 23 "Future Regulation In the Water Industry - Can We Solve the Problems Before They Happen?"  
24 *Water*, Vol. 29, No. 2, pp. 14-17, Summer 1988.
- 25 "The Regulatory Process - Historical and Today," presented at Carolina Power and Light  
26 Company's IRP Public Participation Committee Seminar, June 1994.
- 27 "The Regulatory Role In DSM: Who Pays?" presented at Carolina Power and Light Company's  
28 IRP Public Participation Committee Seminar, June 1994.
- 29 "The Regulatory Process In North Carolina," North Carolina Telephone Association, June 1991.
- 30 **Testimony**
- 31 • Provided both Direct and Rebuttal Testimony for Duke Energy, Progress North Carolina, and Dominion  
32 Resources in their 2005 North Carolina Integrated Resource Planning Hearing, Docket No E100 Sub  
33 103, June, 2006.

- 1 • Provided testimony for Georgia Power in its 2005 Fuel Adjustment Hearing on the issue of the  
2 appropriate pricing methodology for the dispatch and sale of electricity in the Southern Company  
3 system, Docket number 19142-U, April, 2005.
- 4
- 5 Presented testimony before the North Carolina Public Utilities Commission on behalf of SCANA  
6 Corporation regarding issues related to market power in its merger with Public Service Company  
7 of North Carolina, Docket No. G-5, Sub 400; G-3, Sub 0.
- 8 Presented testimony before the South Carolina Public Service Commission on behalf of South  
9 Carolina Pipeline Corporation regarding issues related to its annual review of gas costs as  
10 reflected in its purchase gas adjustment charge, Docket No. 1999-007-G, September, 1999.
- 11 Presented testimony before the Arkansas Public Service Commission on behalf of Entergy  
12 Arkansas, Inc. regarding regulatory policies related to the definition of public utilities as it impacts  
13 citing requirements of non-utility owned generating facilities, Dockets No. 98-337-U, March 9,  
14 1999.
- 15 Presented Rebuttal and Surrebuttal testimony before the Louisiana Public Service Commission on  
16 behalf of Entergy Louisiana, Inc. and Entergy Gulf States regarding regulatory policies related to  
17 stranded cost recovery and on the issue of whether investors have been compensated for the risk  
18 of not recovering stranded costs, Dockets Nos. U-22092SC and U-20925, September, 1998.
- 19 Presented testimony to the South Carolina Public Utility Commission for South Carolina Pipeline  
20 Corp. related to acquisition adjustments and regulatory policies related to performance based  
21 regulation, Docket No. 90-588-G, June, 1998.
- 22 Testified before the Mississippi Public Service Commission on issues related to the establishment  
23 of retail electric competition, including ISO establishment, regional power exchanges, legislation,  
24 taxes and regulatory policies, April 16, 17, 1997.
- 25 Support of Transition Proposals filed by Virginia Power Corporation, March, 1997.
- 26 Entergy Arkansas testimony in support of Transition to Competition Filing, 1997.
- 27 Entergy Louisiana testimony in support of Transition to Competition Filing, 1997.
- 28 Support of Performance Based Regulation for GTE South Inc., Docket No. P-19, Sub 277, before the  
29 North Carolina Utility Commission, filed Nov. 22, 1995.
- 30 Stranded Cost Regulatory Policy and Recovery Testimony before the South Carolina Public  
31 Service Commission, the Commission approved the request Dr. Wright was advocating, Docket  
32 No. 95-1000-E, October 27, 1995.
- 33 Performance based rate making mechanism and rate levels, testimony on behalf of South Carolina  
34 Pipeline Corporation, Docket No. 90-588-G, filed August 3, 1995.

1 Prudence Review of Power Resource Planning for Central Vermont Public Service Company,  
2 Docket No. 5724, September 7, 1994.

3 Rebuttal testimony on behalf of Central Vermont Public Service Company, Docket 5724,  
4 September 7, 1994.

5 Surrebuttal testimony on behalf of Central Vermont Public Service Company, Docket No. 5724,  
6 September 9, 1994.

7

8 Education

9 Dr. Wright received a Ph.D. in Economics from North Carolina State University, focusing on  
10 regulatory and environmental economics, and is a member of the honor society.

11 He received an MBA in finance from Georgia State University in 1978, graduating with honors.

12 He received a Master of Economics from North Carolina State University in 1991 and was a  
13 member of the honor society.

14 He received a B.S. in Chemistry from Valdosta State College in Valdosta, Georgia, graduating  
15 Magna Cum Laud.

16 In addition, he has completed the Michigan State University Regulatory Course, several other  
17 NARUC courses on regulation, been an instructor on regulatory issues at several NARUC courses,  
18 completed management courses at Corning Glass and financial seminars at Bank Boston and  
19 Merrill Lynch dealing with regulation.

20

21

22

23

## **EXHIBIT JAW-2**

### **SEC. 1251. NET METERING AND ADDITIONAL STANDARDS.**

(11) NET METERING - Each electric utility shall make available upon request net metering service to any electric consumer that the electric utility serves. For purposes of this paragraph, the term 'net metering service' means service to an electric consumer under which electric energy generated by that electric consumer from an eligible on-site generating facility and delivered to the local distribution facilities may be used to offset electric energy provided by the electric utility to the electric consumer during the applicable billing period.

"(12) FUEL SOURCES.-Each electric utility shall develop a plan to minimize dependence on 1 fuel source and to ensure that the electric energy it sells to consumers is generated using a divergent range of fuels and technologies, including renewable technologies.

"(13) FOSSIL FUEL GENERATION EFFICIENCY.-Each electric utility shall develop and implement a 10-year plan to increase the efficiency of its fossil fuel generation."

#### **(b) COMPLIANCE.-**

(1) TIME LIMITATIONS.-Section 112(b) of the Public Utility Regulatory Policies Act of 1978 (16 U.S.C. 2622(b)) is amended by adding at the end the following:

"(3)(A) Not later than 2 years after the enactment of this paragraph, each State regulatory authority (with respect to each electric utility for which it has ratemaking authority) and each nonregulated electric utility shall commence the consideration referred to in section 111, or set a hearing date for



1 such consideration, with respect to each standard established by paragraphs (11) through (13) of  
2 section 111(d).

3  
4 "(13) Not later than 3 years after the date of the enactment of this paragraph, each State  
5 regulatory authority (with respect to each electric utility for which it has rate-making authority),  
6 and each nonregulated electric utility, shall complete the consideration, and shall make the  
7 determination, referred to in section 111 with respect to each standard established by paragraphs  
8 (11) through (13) of section 111(d).".

9  
10 (2) FAILURE TO COMPLY.-Section 112(c) of the Public Utility Regulatory Policies Act of 1978  
11 (16 U. S.C. 2622^(c)) is amended by adding at the end the following:

12  
13 "In the case of each standard established by paragraphs (11) through (13) of section 111(d), the  
14 reference contained in this subsection to the date of enactment of this Act shall be deemed to be a  
15 reference to the date of enactment of such paragraphs (11) through (13).

16  
17 (3) PRIOR STATE ACTIONS.-

18  
19 (A) IN GENERAL.-Section 112 of the Public Utility Regulatory Policies Act of 1978 (16  
20 U.S.C. 2622) is amended by adding at the end the following:

21  
22 "(d) PRIOR STATE ACTIONS.-Subsections (b) and (c) of this section shall not apply to the  
23 standards established by paragraphs (11) through (13) of section 111(d) in the case of any electric  
24 utility in a State if, before the enactment of this subsection -

25  
26 "(1) the State has implemented for such utility the standard concerned (or a comparable  
27 standard);

28  
29 "(2) the State regulatory authority for such State or relevant nonregulated electric utility has  
30 conducted a proceeding to consider implementation of the standard concerned (or a comparable  
31 standard) for such utility; or

1  
2 "(3) the State legislature has voted on the implementation of such standard (or a comparable  
3 standard) for such utility."  
4

5 (B) CROSS REFERENCE.-Section 124 of such Act (16 U.S.C. 2634) is amended by adding the  
6 following at the end thereof. "In the case of each standard established by paragraphs (11) through  
7 (13) of section 111(d), the reference contained in this subsection to the date of enactment of this  
8 Act shall be deemed to be a reference to the date of enactment of such paragraphs (11) through  
9 (13).  
10  
11

12 **SEC. 1252. SMART METERING.**  
13

14 (a) IN GENERAL.-Section 111(d) of the Public Utilities Regulatory Policies Act of 1978 (16  
15 U.S.C. 2621 (d)) is amended by adding at the end the following:  
16

17 "(14) TIME-BASED METERING AND COMMUNICATIONS.-  
18

19 "(A) Not later than 18 months after the date of enactment of this paragraph, each electric utility  
20 shall offer each of its customer classes, and provide individual customers upon customer request, a  
21 time-based rate schedule under which the rate charged by the electric utility varies during different  
22 time periods and reflects the variance, if any, in the utility's costs of generating and purchasing  
23 electricity at the wholesale level. The time-based rate schedule shall enable the electric consumer  
24 to manage energy use and cost through advanced metering and communications technology.  
25

26 "(B) The types of time-based rate schedules that may be offered under the schedule referred to in  
27 subparagraph (A) include, among others---  
28

29 "(i) time-of-use pricing whereby electricity prices are set for a specific time period on an advance  
30 or forward basis, typically not changing more often than twice a year, based on the utility's cost of  
31 generating and/or purchasing such electricity at the wholesale level for the benefit of the consumer.

1 Prices paid for energy consumed during these periods shall be pre-established and known to  
2 consumers in advance of such consumption, allowing them to vary their demand and usage in  
3 response to such prices and manage their energy costs by shifting usage to a lower cost period or  
4 reducing their consumption overall;

5  
6 “(ii) critical peak pricing whereby time-of-use prices are in effect except for certain peak days,  
7 when prices may reflect the costs of generating and/or purchasing electricity at the wholesale level  
8 and when consumers may receive additional discounts for reducing peak period energy  
9 consumption;

10  
11 “(iii) real-time pricing whereby electricity prices are set for a specific time period on an advanced  
12 or forward basis, reflecting the utility's cost of generating and/or purchasing electricity at the  
13 wholesale level, and may change as often as hourly; and

14  
15 “(iv) credits for consumers with large loads who enter into pre-established peak load reduction  
16 agreements that reduce a utility's planned capacity obligations.

17  
18 “(C) Each electric utility subject to subparagraph (A) shall provide each customer requesting a  
19 time-based rate with a time-based meter capable of enabling the utility and customer to offer and  
20 receive such rate, specifically.

21  
22 “(D) For purposes of implementing this paragraph, any reference contained in 8 shall be deemed to  
23 be a reference to the date of enactment of this paragraph.

24  
25 “(E) In a State that permits third-party marketers to sell electric energy to retail electric  
26 consumers, such consumers shall be entitled to receive the same time-based metering and  
27 communications device and service as a retail electric consumer of the electric utility.

28  
29 “(F) Notwithstanding subsections (b) and (c) of section 112, each State regulatory authority shall,  
30 not later than 18 months after the date of enactment of this paragraph conduct an investigation in

1 accordance with section II 5(i) and issue a decision whether it is appropriate to implement the  
2 standards set out in subparagraphs (A) and (C).”.

3  
4 (b) STATE INVESTIGATION OF DEMAND RESPONSE AND TIME-BASED  
5 METERING.-Section 115 of the Public Utilities Regulatory Policies Act of 1978 (16 U.S.C. 2625)  
6 is amended as follows:

7  
8 (1) By inserting in subsection (b) after the phrase "the standard for time-of-day rates established by  
9 section 111(d)(3)" the following: "and the standard for time-based metering and communications  
10 established by section 111(d)(14)".

11  
12 (2) By inserting in subsection (^b) after the phrase "are likely to exceed the metering" the  
13 following: "and communications".

14  
15 (3) By adding at the end the following:

16  
17 “(i) TIME-BASED METERING AND COMMLTNICATIONS.-In making a determination with  
18 respect to the standard established by section 111 (d)(I 4), the investigation requirement of section  
19 111(d)(14)(F) shall be as follows: Each State regulatory authority shall conduct an investigation  
20 and issue a decision whether or not it is appropriate for electric utilities to provide and install time-  
21 based meters and communications devices for each of their customers which enable such customers  
22 to participate in time-based pricing rate schedules and other demand response programs.”.

23  
24 (c) FEDERAL ASSISTANCE ON DEMAND RESPONSE.-Section 132(a) of the Public  
25 Utility Regulatory Policies Act of 1978 (16 U.S.C. 2642(a)) is amended by striking "and" at the end  
26 of paragraph (3), striking the period at the end of paragraph (4) and inserting "; and", and by adding  
27 the following at the end thereof: "(5) technologies, techniques, and rate-making methods related to  
28 advanced metering and communications and the use of these technologies, techniques and methods  
29 in demand response programs.”.

(d) FEDERAL GUIDANCE - Section 132 of the Public, Utility Regulatory Policies Act of 1978 (16 U.S.C. 2642) is amended by adding the following at the end thereof:

"(d) DEMAND RESPONSE-The Secretary shall be responsible for-

"(1) educating consumers on the availability, advantages, and benefits of advanced metering and communications technologies, including the funding of demonstration or pilot projects;

"(2) working with States, utilities, other energy providers and advanced metering and communications experts to identify and address barriers to the adoption of demand response programs; and

"(3) not later than 180 days after the date of enactment of the Energy Policy Act of 2005, providing Congress with a report that identifies and quantifies the national benefits of demand response and makes a recommendation on achieving specific levels of such benefits by January 1, 2007.".

(e) DEMAND RESPONSE AND REGIONAL COORDINATION.-

(1) TN GENERAL - It is the policy of the United States to encourage States to coordinate, on a regional basis, State energy policies to provide reliable and affordable demand response services to the public.

(2) TECHNICAL ASSISTANCE.-The Secretary of Energy shall provide technical assistance to States and regional organizations formed by 2 or more States to assist them in-

(A) identifying the areas with the greatest demand response potential;

(B) identifying and resolving problems in transmission and distribution networks, including through the use of demand response;

1 (C) developing plans and programs to use demand response to respond to peak demand or  
2 emergency needs; and  
3

4 (D) identifying specific measures consumers can take to participate in these demand response  
5 programs.  
6

7 (3) REPORT - Not later than 1 year after the date of enactment of the Energy Policy Act of 2005,  
8 the Commission shall prepare and publish an annual report, by appropriate region, that assesses  
9 demand response resources, including those available from all consumer classes, and which  
10 identifies and reviews-

11  
12 (A) saturation and penetration rate of advanced meters and communications technologies, devices  
13 and systems;  
14

15 (B) existing demand response programs and time-based rate programs;  
16

17 (C) the annual resource contribution of demand resources;  
18

19 (D) the potential for demand response as a quantifiable, reliable resource for regional planning  
20 purposes;  
21

22 (E) steps taken to ensure that, in regional transmission planning and operations, demand resources  
23 are provided equitable treatment as a quantifiable, reliable resource relative to the resource  
24 obligations of any load-serving entity, transmission provider, or transmitting party; and  
25

26 (F) regulatory barriers to improved customer participation in demand response, peak reduction and  
27 critical period pricing programs.  
28

29 (f) FEDERAL ENCOURAGEMENT OF DEMAND RESPONSE DEVICES.-It is the policy of the  
30 United States that time-based pricing and other forms of demand response, whereby electricity  
31 customers are provided with electricity price signals and the ability to benefit by responding to

1 them, shall be encouraged, the deployment of such technology and devices that enable electricity  
2 customers to participate in such pricing and demand response systems shall be facilitated, and  
3 unnecessary barriers to demand response participation in energy, capacity and ancillary service  
4 markets shall be eliminated. It is further the policy of the United States that the benefits of such  
5 demand response that accrue to those not deploying such technology and devices, but who are part  
6 of the same regional electricity entity, shall be recognized.

7  
8 (g) TIME LIMITATIONS.-Section 112(b) of the Public Utility Regulatory Policies Act of 1978  
9 (16 U.S.C. 2622(b)) is amended by adding at the end the following:

10  
11 "(4)(A) Not later than 1 year after the enactment of this paragraph, each State regulatory authority  
12 (with respect to each electric utility for which it has ratemaking authority) and each nonregulated  
13 electric utility shall commence the consideration referred to in section 111, or set a hearing date for  
14 such consideration, with respect to the standard established by paragraph (14) of section 111(d).

15  
16 "(13) Not later than 2 years after the date of the enactment of this paragraph, each State regulatory  
17 authority (with respect to each electric utility for which it has ratemaking authority), and each  
18 nonregulated electric utility, shall complete the consideration, and shall make the determination,  
19 referred to in section 111 with respect to the standard established by paragraph (14) of section  
20 111(d)."

21  
22 (h) FAILURE TO COMPLY.-Section 112(c) of the Public Utility Regulatory Policies Act of 1978  
23 (16 U.S.C. 2622(c)) is amended by adding at the end the following:

24 "In the case of the standard established by paragraph (14) of section 111(d), the reference contained  
25 in this subsection to the date of enactment of this Act shall be deemed to be a reference to the date  
26 of enactment of such paragraph (14). " ^-

27  
28 (i) PRIOR STATE ACTIONS REGARDING SMART METERING STANDARDS.-

29 (1) IN GENERAL - Section 112 of the Public Utility Regulatory Policies Act of 1978 (16  
30 U.S.C. 2622) is amended by adding at the end the following:

1 "(e) PRIOR STATE ACTIONS - Subsections (b) and (c) of this section shall not apply to the  
2 standard established by paragraph (14) of section 111(d) in the case of any electric utility in a State  
3 if, before the enactment of this subsection -  
4

5 "(1) the State has implemented for such utility the standard concerned (or a comparable standard);  
6

7 "(2) the State regulatory authority for such State or relevant nonregulated electric utility has  
8 conducted a proceeding to consider implementation of the standard concerned (or a comparable  
9 standard) for such utility within the previous 3 years; or  
10

11 "(3) the State legislature has voted on the implementation of such standard (or a comparable  
12 standard) for such utility within the previous 3 years."  
13

14 (2) CROSS REFERENCE.-Section 124 of such  
15 Act (16 U.S.C. 2634) is amended by adding the following at the end thereof. "In the case of the  
16 standard established by paragraph (14) of section 111(d), the reference contained in this subsection  
17 to the date of enactment of this Act shall be deemed to be a reference to the date of enactment of  
18 such paragraph (14)."  
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# **EXHIBIT JAW-3**

## **Subtitle B – Standards for Electric Utilities**

### **16 U.S.C. § 2621. (PURPA SECTION 111) Consideration and determination respecting certain ratemaking standards**

#### **(a) Consideration and determination**

Each State regulatory authority (with respect to each electric utility for which it has ratemaking authority) and each nonregulated electric utility shall consider each standard established by subsection (d) of this section and make a determination concerning whether or not it is appropriate to implement such standard to carry out the purposes of this chapter. For purposes of such consideration and determination in accordance with subsections (b) and (c) of this section, and for purposes of any review of such consideration and determination in any court in accordance with section 2633 of this title, the purposes of this chapter supplement otherwise applicable State law. Nothing in this subsection prohibits any State regulatory authority or nonregulated electric utility from making any determination that it is not appropriate to implement any such standard, pursuant to its authority under otherwise applicable State law.

#### **(b) Procedural requirements for consideration and determination**

(1) The consideration referred to in subsection (a) of this section shall be made after public notice and hearing. The determination referred to in subsection (a) of this section shall be—

(A) in writing,

(B) based upon findings included in such determination and upon the evidence presented at the hearing, and

(C) available to the public.

(2) Except as otherwise provided in paragraph (1), in the second sentence of section 2622 (a) of this title, and in sections 2631 and 2632 of this title, the procedures for the consideration and determination referred to in subsection (a) of this section shall be those established by the State regulatory authority or the nonregulated electric utility.

#### **(c) Implementation**

(1) The State regulatory authority (with respect to each electric utility for which it has ratemaking authority) or nonregulated electric utility may, to the extent consistent with otherwise applicable State law—

(A) implement any such standard determined under subsection (a) of this section to be appropriate to carry out the purposes of this chapter, or

(B) decline to implement any such standard.

1 (2) If a State regulatory authority (with respect to each electric utility for which it has  
2 ratemaking authority) or nonregulated electric utility declines to implement any standard  
3 established by subsection (d) of this section which is determined under subsection (a) of this  
4 section to be appropriate to carry out the purposes of this chapter, such authority or  
5 nonregulated electric utility shall state in writing the reasons therefore. Such statement of  
6 reasons shall be available to the public.

7 (3) If a State regulatory authority implements a standard established by subsection (d)(7) or  
8 (8) of this section, such authority shall—

9 (A) consider the impact that implementation of such standard would have on small  
10 businesses engaged in the design, sale, supply, installation or servicing of energy  
11 conservation, energy efficiency or other demand side management measures, and

12 (B) implement such standard so as to assure that utility actions would not provide such  
13 utilities with unfair competitive advantages over such small businesses.  
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# JAW EXHIBIT -JAW -4

## **PART 292—REGULATIONS UNDER SECTIONS 201 AND 210 OF THE PUBLIC UTILITY REGULATORY POLICIES ACT OF 1978 WITH REGARD TO SMALL POWER PRODUCTION AND COGENERATION**

### **Subpart B—Qualifying Cogeneration and Small Power Production Facilities**

#### **§ 292.203 General requirements for qualification.**

(a) *Small power production facilities.* Except as provided in paragraph (c) of this section, a small power production facility is a qualifying facility if it:

(1) Meets the maximum size criteria specified in §292.204(a);

(2) Meets the fuel use criteria specified in §292.204(b); and

(3) Has filed with the Commission a notice of self-certification, pursuant to §292.207(a); or has filed with the Commission an application for Commission certification, pursuant to §292.207(b)(1), that has been granted.

(b) *Cogeneration facilities.* A cogeneration facility, including any diesel and dual-fuel cogeneration facility, is a qualifying facility if it:

(1) Meets any applicable operating and efficiency standards specified in §292.205(a) and (b); and

(2) Has filed with the Commission a notice of self-certification, pursuant to §292.207(a); or has filed with the Commission an application for Commission certification, pursuant to §292.207(b)(1), that has been granted.

(c) *Hydroelectric small power production facilities located at a new dam or diversion.* (1) A hydroelectric small power production facility that impounds or diverts the water of a natural watercourse by means of a new dam or diversion (as that term is defined in §292.202(p)) is a qualifying facility if it meets the requirements of:

(i) Paragraph (a) of this section; and

(ii) Section 292.208.

#### **§ 292.204 Criteria for qualifying small power production facilities.**

(a) *Size of the facility —1) Maximum size.* There is no size limitation for an eligible solar, wind, waste or facility, as defined by section 3(17)(E) of the Federal Power Act. For a non-eligible facility, the power production capacity for which qualification is sought, together with the power production capacity of any other non-eligible small power

production facilities that use the same energy resource, are owned by the same person(s) or its affiliates, and are located at the same site, may not exceed 80 megawatts.

(2) *Method of calculation.* (i) For purposes of this paragraph, facilities are considered to be located at the same site as the facility for which qualification is sought if they are located within one mile of the facility for which qualification is sought and, for hydroelectric facilities, if they use water from the same impoundment for power generation.

(ii) For purposes of making the determination in clause (i), the distance between facilities shall be measured from the electrical generating equipment of a facility.

(3) *Waiver.* The Commission may modify the application of paragraph (a)(2) of this section, for good cause.

(b) *Fuel use.* (1)(i) The primary energy source of the facility must be biomass, waste, renewable resources, geothermal resources, or any combination thereof, and 75 percent or more of the total energy input must be from these sources.

(ii) Any primary energy source which, on the basis of its energy content, is 50 percent or more biomass shall be considered biomass.

(2) Use of oil, natural gas and coal by a facility, under section 3(17)(B) of the Federal Power Act, is limited to the minimum amounts of fuel required for ignition, startup, testing, flame stabilization, and control uses, and the minimum amounts of fuel required to alleviate or prevent unanticipated equipment outages, and emergencies, directly affecting the public health, safety, or welfare, which would result from electric power outages. Such fuel use may not, in the aggregate, exceed 25 percent of the total energy input of the facility during the 12-month period beginning with the date the facility first produces electric energy and any calendar year subsequent to the year in which the facility first produces electric energy.

## **§ 292.205 Criteria for qualifying cogeneration facilities.**

(a) *Operating and efficiency standards for topping-cycle facilities* —(1) *Operating standard.* For any topping-cycle cogeneration facility, the useful thermal energy output of the facility must be no less than 5 percent of the total energy output during the 12-month period beginning with the date the facility first produces electric energy, and any calendar year subsequent to the year in which the facility first produces electric energy.

(2) *Efficiency standard.* (i) For any topping-cycle cogeneration facility for which any of the energy input is natural gas or oil, and the installation of which began on or after March 13, 1980, the useful power output of the facility plus one-half the useful thermal energy output, during the 12-month period beginning with the date the facility first produces electric energy, and any calendar year subsequent to the year in which the facility first produces electric energy, must:

(A) Subject to paragraph (a)(2)(i)(B) of this section be no less than 42.5 percent of the total energy input of natural gas and oil to the facility; or

(B) If the useful thermal energy output is less than 15 percent of the total energy output of the facility, be no less than 45 percent of the total energy input of natural gas and oil to the facility.

(ii) For any topping-cycle cogeneration facility not subject to paragraph (a)(2)(i) of this section there is no efficiency standard.

(b) *Efficiency standards for bottoming-cycle facilities.* (1) For any bottoming-cycle cogeneration facility for which any of the energy input as supplementary firing is natural gas or oil, and the installation of which began on or after March 13, 1980, the useful power output of the facility during the 12-month period beginning with the date the facility first produces electric energy, and any calendar year subsequent to the year in which the facility first produces electric energy must be no less than 45 percent of the energy input of natural gas and oil for supplementary firing.

(2) For any bottoming-cycle cogeneration facility not covered by paragraph (b)(1) of this section, there is no efficiency standard.

1 (c) *Waiver*. The Commission may waive any of the requirements of paragraphs (a) and (b) of this section upon a  
2 showing that the facility will produce significant energy savings.

3 (d) *Criteria for new cogeneration facilities*. Notwithstanding paragraphs (a) and (b) of this section, any cogeneration  
4 facility that was either not certified as a qualifying cogeneration facility on or before August 8, 2005, or that had not  
5 filed a notice of self-certification, self-recertification or an application for Commission certification or Commission  
6 recertification as a qualifying cogeneration facility under §292.207 of this chapter prior to February 2, 2006, and  
7 which is seeking to sell electric energy pursuant to section 210 of the Public Utility Regulatory Policies Act of 1978,  
8 16 U.S.C. 824a-1, must also show:

9 (1) The thermal energy output of the cogeneration facility is used in a productive and beneficial manner; and

10 (2) The electrical, thermal, chemical and mechanical output of the cogeneration facility is used fundamentally for  
11 industrial, commercial, residential or institutional purposes and is not intended fundamentally for sale to an electric  
12 utility, taking into account technological, efficiency, economic, and variable thermal energy requirements, as well as  
13 state laws applicable to sales of electric energy from a qualifying facility to its host facility.

14 (3) Fundamental use test. For the purposes of satisfying paragraph (d)(2) of this section, the electrical, thermal,  
15 chemical and mechanical output of the cogeneration facility will be considered used fundamentally for industrial,  
16 commercial, or institutional purposes and not intended fundamentally for sale to an electric utility if at least 50  
17 percent of the aggregate of such output, on an annual basis, is used for industrial, commercial, residential or  
18 institutional purposes. In addition, applicants for facilities that do not meet this safe harbor standard may present  
19 evidence to the Commission that the facilities should nevertheless be certified given state laws applicable to sales  
20 of electric energy or unique technological, efficiency, economic, and variable thermal energy requirements.

21 (4) For purposes of paragraphs (d)(1) and (d)(2) of this section, a new cogeneration facility of 5 MW or smaller will  
22 be presumed to satisfy the requirements of those paragraphs.

23 (5) For purposes of paragraph (d)(1) of this section, where a thermal host existed prior to the development of a new  
24 cogeneration facility whose thermal output will supplant the thermal source previously in use by the thermal host,  
25 the thermal output of such new cogeneration facility will be presumed to satisfy the requirements of paragraph  
26 (d)(1).